(i) CLAIMS:

1. A protective helmet providing at least one illuminating LED array, including a circuit driven by at least one battery for powering amplifying means to drive the array, the circuit comprising: a comparator, the battery providing an input voltage and a reference voltage for the comparator, the comparator being turned on when the input voltage exceeds the reference voltage, a semiconductor device actuated by the comparator, and functioning as a shunt to maintain the load voltage constant for voltage/current variations as the battery is worn down, and amplifiers connected to the battery, semiconductor device and comparator for turning on the LED array.

2. The helmet of Claim 1, in which the comparator is an operational amplifier, the semiconductor device is a Zener diode, and the amplifiers are transistors.

3. The helmet of Claim 2, in which input voltage is supplied to the comparator through a voltage divider.

4. The helmet of Claim 2, in which batteries provide about 6600 milliamps @ 7.2 volts, and the LED array provides about 4000 MCD @ about 20 milliamps for about 5 - 5 1/2 hours for about 93 LEDs in the arrays.

5. The helmet of Claim 2, in which the zener diode is operated in the reverse conduction condition to reduce ripple voltage.

6. The helmet of Claim 2, comprising an inner component of resilient material, and central and outer components of a hard material, the components being secured together, and at least one LED array mounted in at least one of the central and outer components.

7. The helmet of Claim 6, in which the resilient material is constructed as a foam.

8. The helmet of Claim 6, in which the central and outer components are integrally formed of plastic material, at least one of the said components providing a centrally disposed reinforcing grid, and one or more batteries being secured in the reinforcing grid when the central and outer components are joined together.

9. The helmet of Claim 2, in which components of the circuit are mounted on a circuit board secured by the helmets, and two batteries are employed for respective input and reference voltages, the batteries being isolated from each other by a diode.

10. The helmet of Claim 1, the batteries being removable, rechargeable, or both.

11. A method for providing a helmet with at least one illuminating LED array, which comprises incorporating a circuit into the helmet, the circuit including: at least one battery for powering amplifying means to drive the array, the circuit comprising: a comparator, the battery providing an input voltage and a reference voltage for the comparator, the comparator being turned on when the input voltage exceeds the reference voltage, a semiconductor device actuated by the comparator, and functioning as a shunt to maintain the load voltage constant for voltage/current variations as the battery is worn down, and amplifiers connected to the battery, semiconductor device and comparator for turning on the LED array.

12. The method of claim 11, in which the comparator is an operational amplifier, the semiconductor device is a Zener diode, and the amplifiers are transistors.

13. The helmet of Claim 12, in which input voltage is supplied to the comparator through a voltage divider.

14. The helmet of Claim 12, in which batteries provide about 6600 milliamps @ 7.2 volts, and the LED array provides about 4000 MCD @ about 20 milliamps for about 5 - 5 1/2 hours for about 93 LEDs in the arrays.

15. The method of Claim 12, in which the Zener diode is operated in the reverse conduction condition to reduce ripple voltage.

16. The method of Claim 12, comprising an inner component of resilient material, and central and outer components of a hard material, the components being secured together, and an LED array is mounted in at least one of the central and outer components.

17. The method of Claim 16, in which the resilient material is constructed as a foam.

18. The method of Claim 16, in which the central and outer components are integrally formed of plastic material and provide at least one centrally disposed reinforcing grid, and batteries being secured in the reinforcing grid when the central and outer components are joined together.

19. The method of Claim 12, in which components of the circuit are mounted on a circuit board secured by the helmets, and two batteries are separately employed for respective input and reference voltages.

20. The method of Claim 11, in which the batteries are operated as being removable and rechargeable.